WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTERS PATENT OF THE UNITED STATES IS:

1. An image processing system for processing a component color image signal extracted from image signals, comprising:

quantizing means for quantizing said component color image signal over a plurality of quantization regions thereof such that a color difference per unit error caused by quantization of said component color image signal in each of said plurality of quantization regions is within a predetermined value.

2. The image processing system according to claim 1,

wherein said quantizing means quantizes low frequency components of said component color image signal.

3. The image processing system according to claim 1,

wherein said quantizing means computes said color difference per unit error by averaging color differences over all values of G as a parameter among components R, G and B.

4. The image processing system according to claim 1,

wherein said quantizing means obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G as a parameter among components R, G and B.

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5. An image processing system for processing a component color image signal extracted from image signals, comprising:

quantizing means for quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a maximum of said color difference per unit error caused by quantization of said component color image signal.

6. The image processing system according to claim 5,

wherein said quantizing means computes said color difference per unit error by averaging color difference versus component color image signal plots over all values of G as a parameter among components R, G and B.

7. The image processing system according to claim 5,

wherein said quantizing means obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G, as a parameter, among components R, G and B.

8. The image processing system according to claim 5,

wherein said quantizing means linearly quantizes said component color image signal in at least one of a plurality of quantization regions specified by a value of said component color image signal, as a threshold, corresponding to at

least one of a polarity change and a maximum of said polarity change.

9. An image processing system for processing a component color image signal extracted from image signals, comprising:

quantizing means for quantizing said component color image signal under a quantization level number different for each of <u>a plurality of quantization</u> regions specified by a value of said component color image signal corresponding to a polarity change of said component color image signal.

10. The image processing system according to claim 9,

wherein said quantizing means computes a color difference per unit error by averaging color difference versus component color image signal plots over all values of G as a parameter among components R, G and B.

11. The image processing system according to claim 9,

wherein said quantizing means obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G, as a parameter, among components R, G and B.

12. The image processing system according to claim 9,

wherein said quantizing means linearly quantizes said component color image signal in at least one of a plurality of quantization regions specified by a

value of said component color image signal, as a threshold, corresponding to at least one of a polarity change and a maximum of said polarity change.

13. An image processing system for processing a plurality of component color image signals extracted from image signals, comprising:

quantizing means for quantizing one of said plurality of component color image signals depending on other component color image signals which are not presently quantized.

14. An image processing system for processing a plurality of component color image signals extracted from image signals, comprising:

quantizing means for quantizing one of said plurality of component color image signals depending on a position of said one of said plurality of component color image signals on a plane identified by a subsection of said plane; said plane being specified by said plurality of component color image signals, as parameters, and divided into a plurality of said subsections with respect to a locus of maximal points of a color difference per unit error caused by a quantization error of said component color image signal to be presently quantized.

15. The image processing system according to claim 14,

wherein said quantizing means linearly quantizes said component color image signal in at least one of said plurality of subsections.

16. An image processing system for processing first and second component color image signals extracted from image signals, comprising:

quantizing means for quantizing said first component color image signal and a distance of a position from a locus of points of equal values of said first and second component color image signals, said position corresponding to said first and second component color image signals on a plane specified by said first and second component color image signals.

17. The image processing system according to claim 16,

wherein said quantizing means quantizes at least one of a difference between first and second component color image signals, and either one of said first and second component color image signals.

18. A method for processing a component color image signal extracted from image signals for an image processing system, comprising the step of:

quantizing said component color image signal over a plurality of quantization regions thereof such that a color difference per unit error caused by quantization of said component color image signal in each of said plurality of quantization regions is within a predetermined value.

19. The method according to claim 18, further comprising the step of:

computing said color difference per unit error by averaging color differences over all values of G as a parameter among components R, G and B.

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20. The method according to claim 18, further comprising the step of:

obtaining said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G as a parameter among components R, G and B

21. A method for processing a component color image signal extracted from image signals for an image processing system, comprising the step of:

quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a maximum of a color difference per unit error caused by quantization of said component color image signal.

22. The method according to claim 21, further comprising the step of:

computing said color difference per unit error by averaging color differences over all values of G as a parameter among components R, G and B.

23. The method according to claim 21, further comprising the step of:

obtaining said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G as a parameter among components R, G and B

24. The method according to claim 21, further comprising the step of:

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linearly quantizing said component color image signal in at least one of a plurality of quantization regions specified by a value of said component color image signal, as a threshold, corresponding to at least one of a polarity change and a maximum of said polarity change.

25. A method for processing a component color image signal extracted from image signals for an image processing system, comprising the step of:

quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a polarity change of said component color image signal.

26. The method according to claim 25, further comprising the step of:

computing a color difference per unit error by averaging color differences over all values of G as a parameter among components R, G and B.

27. The method according to claim 25, further comprising the step of:

obtaining said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G as a parameter among components R, G and B

28. The method according to claim 25, further comprising the step of:

linearly quantizing said component color image signal in at least one of a plurality of quantization regions specified by a value of said component color image signal, as a threshold, corresponding to at least one of a polarity change and a maximum of said polarity change.

29. A method for processing a plurality of component color image signals extracted from image signals for an image processing system, comprising the step of:

quantizing one of said plurality of component color image signals depending on other component color image signals which are not presently quantized.

30. A method for processing a plurality of component color image signals extracted from image signals for an image processing system, comprising the step of:

quantizing one of said plurality of component color image signals depending on a position thereof on a plane identified by a subsection of said plane; said plane being specified by said plurality of component color image signals, as parameters, and divided into a plurality of said subsections with respect to a locus of maximal points of a color difference per unit error caused by a quantization error of said component color image signal to be presently quantized.

31. The method according to claim 30, further comprising the step of:

linearly quantizing said component color image signal in at least one of said plurality of subsections.

32. A method for processing first and second component color image signals extracted from image signals for an image processing system, comprising the step of:

quantizing said first component color image signal and a distance of a position from a locus of points of equal values of said first and second component color image signals, said position corresponding to said first and second component color image signals on a plane specified by said first and second component color image signals.

33. The method according to claim 32, further comprising the step of:

quantizing at least one of a difference between said first and second component color image signals, and either one of said first and second component color image signals.

34. A computer accessible storage medium storing computer instructions for processing a component color image signal extracted from image signals for an image processing system,

wherein said computer instructions perform at least the step of quantizing

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said component color image signal over a plurality of quantization regions thereof such that a color difference per unit error caused by quantization of said component color image signal in each of said plurality of quantization regions is within a predetermined value.

35. A computer accessible storage medium storing computer instructions for processing a component color image signal extracted from image signals for an image processing system,

wherein said computer instructions perform at least the step of quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a maximum of said color difference per unit error caused by quantization of said component color image signal.

36. A computer accessible storage medium storing computer instructions for processing a plurality of component color image signals extracted from image signals for an image processing system,

wherein said computer instructions perform at least a step of quantizing one of said plurality of component color image signals depending on other component color image signals which are not presently quantized.

37. An image processing system for processing a component color image

signal extracted from image signals, comprising:

a quantizing device for quantizing said component color image signal over a plurality of quantization regions thereof such that a color difference per unit error caused by quantization of said component color image signal in each of said plurality of quantization regions is within a predetermined value.

38. The image processing system according to claim 37,

wherein said quantizing device quantizes low frequency components of said component color image signal.

39. The image processing system according to claim 37,

wherein said quantizing device computes said color difference per unit error by averaging color differences over all values of G as a parameter among components R, G and B.

40. The image processing system according to claim 37,

wherein said quantizing device obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G as a parameter among components R, G and B.

41. An image processing system for processing a component color image signal extracted from image signals, comprising:

a quantizing device for quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a maximum of said color difference per unit error caused by quantization of said component color image signal.

42. The image processing system according to claim 41,

wherein said quantizing device computes said color difference per unit error by averaging color difference versus component color image signal plots over all values of G as a parameter among components R, G and B.

43. The image processing system according to claim 41,

wherein said quantizing device obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G, as a parameter, among components R, G and B.

44. The image processing system according to claim 41,

wherein said quantizing device linearly quantizes said component color image signal in at least one of a plurality of quantization regions specified by a value of said component color image signal, as a threshold, corresponding to at least one of a polarity change and a maximum of said polarity change.

45. An image processing system for processing a component color image signal extracted from image signals, comprising:

a quantizing device for quantizing said component color image signal under a quantization level number different for each of a plurality of quantization regions specified by a value of said component color image signal corresponding to a polarity change of said component color image signal.

46. The image processing system according to claim 45,

wherein said quantizing device computes a color difference per unit error by averaging color difference versus component color image signal plots over all values of G as a parameter among components R, G and B.

47. The image processing system according to claim 45,

wherein said quantizing device obtains said color difference per unit error as an envelope drawn through maximal points of color difference versus component color image signal plots for all values of G, as a parameter, among components R, G and B.

48. The image processing system according to claim 45,

wherein said quantizing device linearly quantizes said component color image signal in at least one of a plurality of quantization regions specified by a value of said component color image signal, as a threshold, corresponding to at least one of a polarity change and a maximum of said polarity change.

49. An image processing system for processing a plurality of component color image signals extracted from image signals, comprising:

a quantizing device for quantizing one of said plurality of component color image signals depending on other component color image signals which are not presently quantized.

50. An image processing system for processing a plurality of component color image signals extracted from image signals, comprising:

a quantizing device for quantizing one of said plurality of component color image signals depending on a position of said one of said plurality of component color image signal on a plane identified by a subsection of said plane; said plane being specified by said plurality of component color image signals, as parameters, and divided into a plurality of said subsections with respect to a locus of maximal points of a color difference per unit error caused by a quantization error of said component color image signal to be presently quantized.

51. The image processing system according to claim 50,

wherein said quantizing device linearly quantizes said component color image signal in at least one of said plurality of subsections.

52. An image processing system for processing first and second component color image signals extracted from image signals, comprising:

a quantizing device for quantizing said first component color image signal

and a distance of a position from a locus of points of equal values of said first and second component color image signals, said position corresponding to said first and second component color image signals on a plane specified by said first and second component color image signals.

53. The image processing system according to claim 52,

wherein said quantizing device quantizes at least one of a difference between first and second component color image signals, and either one of said first and second component color image signals.